

TO BAI OR NOT TO BAI? THAT IS THE QUESTION

**A MONOGRAPH
BY
Major Steven E. McKay
United States Air Force**



**School of Advanced Military Studies
United States Army Command and General Staff
College
Fort Leavenworth, Kansas**

First Term AY 96-97

Approved for Public Release Distribution is Unlimited

19970505 169

UNCLASSIFIED

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE		3. REPORT TYPE AND DATES COVERED MONOGRAPH	
4. TITLE AND SUBTITLE <i>To BAI or not to BAI? That is the Question.</i>				5. FUNDING NUMBERS	
6. AUTHOR(S) <i>Major Steven E. McKay, USAF MA, SUNY Plattsburgh</i>					
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) School of Advanced Military Studies Command and General Staff College Fort Leavenworth, Kansas 66027				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Command and General Staff College Fort Leavenworth, Kansas 66027				10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES					
12a. DISTRIBUTION / AVAILABILITY STATEMENT APPROVED FOR PUBLIC RELEASE: DISTRIBUTION UNLIMITED:				12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) <i>Attached</i>					
14. SUBJECT TERMS <i>BAI, Air Intervention (BAI), Close Air Support AIRLAND BATTLE DOCTRINE, The History of BAI, Intervention (CAS), Gulf War Air Campaign, Tank-Linking, First-FAC, Strip Alert, JFACC, 31 Initiatives</i>				15. NUMBER OF PAGES <i>67</i>	
				16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED	19. SECURITY CLASSIFICATION OF ABSTRACT UNCLASSIFIED	20. LIMITATION OF ABSTRACT UNLIMITED		

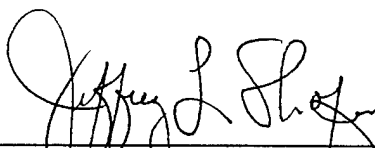
SCHOOL OF ADVANCED MILITARY STUDIES

MONOGRAPH APPROVAL

Major Steven E. McKay

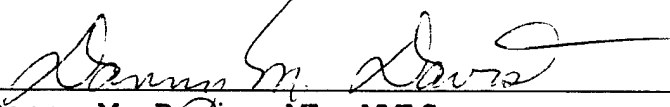
Title of Monograph: *To BAI or not to BAI? That is the Question.*

Approved by:



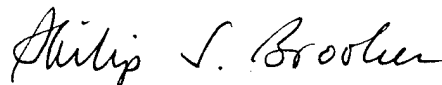
LTC Jeffrey L. Shafer, MMAS

Monograph Director



COL Danny M. Davis, MA, MMAS

Director, School of
Advanced Military
Studies



Philip J. Brookes, Ph.D.

Director, Graduate
Degree Program

Accepted this 20th Day of December 1996

ABSTRACT

TO BAI OR NOT TO BAI? THAT IS THE QUESTION. by MAJ Steven E. McKay, USAF, MA, SUNY Plattsburgh, 67 pages.

This paper addresses the question, "what happened to Battlefield Air Interdiction (BAI)?" and what that question has to do with the development and evolution of Air Force doctrine. The answer goes much deeper than just the simple disappearance of a mission term from warfighting lexicons. The disappearance of the BAI mission represents an evolution of Air Force doctrine--not just a conflict with the Army. It's an unfortunate side-effect that this action also affected Army doctrine. In today's joint environment, service doctrinal changes are prone to affect interservice operations--that should be expected. But BAI's disappearance none-the-less demonstrates a maturing of air power doctrine. This maturing went away from long-held strategic air power only, or tactical air power only doctrinal focuses, to synthesize these approaches--something that was long overdue. As a result, the Air Force combined tactical interdiction doctrine and strategic attack doctrine in the Operation Desert Storm air campaign plan that successfully produced operational shock on the enemy across the entire theater.

Using Air Force, Army, and Joint doctrines as a backdrop, and taking a look back at history, this paper addresses the issue of BAI, both as a mission, and as a concept. After defining the terms close air support (CAS), BAI, and air interdiction (AI) as missions of the Air Force role of force application, an examination of BAI is conducted in the historical contexts of previous air wars. This historical look at battlefield interdiction through each of the different wars, and its development through the Army/Air Force 31 Initiatives will demonstrate the transition from a doctrinal mindset of strategic air power, to one favoring tactical air in support of ground maneuver warfare. The heart of the paper goes through Air Force doctrinal development, to the synthesis that lead to the air plan for the Gulf War.

Using the example of the evolution of the battlefield interdiction mission, and a variety of employment techniques from the Gulf War, this monograph will prove that BAI--the concept--has never really gone away. The paper finishes with a look at important lessons learned about BAI and the relationship between battlefield interdiction and the idea of keeping air power doctrine flexible to support the theater Joint Forces Commander (JFC)/Commander in Chief (CINC). The paper concludes with some thoughts by the Air Force Chief of Staff, General Ronald Fogleman on the development of an air power doctrine and employment strategy he calls asymmetric force strategy.

TABLE OF CONTENTS

INTRODUCTION	iv
1. <i>Overview</i>	vii
CHAPTER 1. DEFINING CAS, BAI, AND AI	1
1. <i>Definition Problems</i>	1
2. <i>Defining CAS, AI, and BAI</i>	2
3. <i>BAI the Concept versus BAI the Mission</i>	4
CHAPTER 2. BAI THROUGHOUT HISTORY	8
1. <i>World War I</i>	8
2. <i>World War II</i>	10
3. <i>The New "Air Force"</i>	11
4. <i>Korea</i>	12
5. <i>Vietnam</i>	15
6. <i>Lessons Learned?</i>	18
CHAPTER 3. BAI AND THE 31 INITIATIVES	20
1. <i>Military Reform</i>	21
2. <i>Air Force/Army Cooperation</i>	21
3. <i>The 31 Initiatives</i>	22
CHAPTER 4. A SHORT LOOK AT AIR FORCE DOCTRINE	24
1. <i>Early Confusion</i>	24
2. <i>USAF Doctrine Development: Who's Responsible?</i>	25
3. <i>USAF Doctrine in the 1970'S</i>	26
4. <i>USAF Doctrine and AirLand Battle--The Rise of the TAC Mafia</i>	27
5. <i>The Rise of the Air Power Men</i>	29
6. <i>The TAC Mafia versus the Air Power Men</i>	30
CHAPTER 5. BAI AND THE GULF WAR	32
1. <i>The Air Power Men Get the Call</i>	32
2. <i>A Face-Lift for the Air Plan</i>	34
3. <i>The Elimination of the BAI Mission</i>	35
CHAPTER 6. BAI LESSONS LEARNED	39
1. <i>Air Force Changes Based on Success in the Gulf War</i>	40
2. <i>Flexible Command and Control</i>	41
3. <i>Command and Control Structure</i>	42
4. <i>Command Relationships</i>	43
5. <i>Asymmetric Force Strategy</i>	44

TABLE OF CONTENTS (con't.)

<u>CHAPTER 7. CONCLUSION</u>46
<u>ENDNOTES</u>48
<u>BIBLIOGRAPHY</u>54

INTRODUCTION

In the middle 1980's, as a result of an intense effort to cooperate on AirLand-Battle doctrine, the U.S. Air Force and Army entered into a series of agreements which were called the "31 Initiatives." This move was seen as tremendous progress between the two services improving efforts to plan and fight better. After swiftly applying many of the agreed upon initiatives, focus narrowed to just a few. One of the initiatives became particularly sticky; number twenty-one. This initiative pertained to a mission to be performed by the Air Force for the Army. Its name is battlefield air interdiction (BAI).

BAI, as the name implies, is a way for ground commanders to interdict deep into second echelon forces with air missions designed to affect enemy units at the back edge of or moving toward the battlefield. This mission gives the commanders a means of interdicting the deepest portions of the battlefield with dedicated air missions assigned to them. This mission and its terminology became a cornerstone for Army commanders counting on dedicated air support from the Air Force that would tilt the balance of force and firepower in their favor. With BAI, the ground commander knew he was getting dedicated sorties to interdict and shape the battlefield. Practiced in joint exercises and trained for as a routine way of doing business, the Army became very comfortable with and expectant of the BAI mission over the closing years of the 1980's.

During the final preparations for the build-up in the Persian Gulf in 1990, all systems were go for an all-out joint war to be conducted by coalition forces using the latest equipment technology had to offer, and the latest missions and procedures practiced for years in joint

exercises. As the build-up continued for aircraft in Desert Shield, the air tasking order (ATO), the primary document used for aircraft sortie scheduling and tasking, kept getting larger and larger. As the size of the air component finalized before Desert Storm, total air sorties grew to nearly 3,000 per day. Due to the enormous tasking attributed to the large numbers of aircraft and sorties, the Joint Forces Air Component Commander (JFACC), General Chuck Horner, made the decision that the missions and tasking assigned to the ATO should to be streamlined. Unfortunately for the Army, one of the casualties of this decision process was the BAI mission.

To General Horner, BAI was a subset of a larger and more clearly understood mission, that of air interdiction (AI). The decision seemed logical and made sortie allocation easier for the JFACC, at least in the eyes of the air operation contingent. But, Army ground commanders in Desert Storm felt slighted by the move. They sensed that their fingers had been cut-off from the hand that affected the shaping of the battlefield. As a result, they would have little say in deep targeting, an area of considerable interest and concern.

Of even greater significance though, the purely managerial move by General Horner was seen by the ground command contingent as a return to aerial parochialism and a breaking of the faith that was established by the 31 Initiatives. Accompanying the many great successes of the interservice cooperation during the Gulf War, this one incident loomed as the greatest of the few failures, and continues to be a hotly debated issue years after the war's termination.

Desert Storm was a war that proved to be very significant for enthusiasts of air power. The success gained by air operations in the Gulf represented, what many would say, the first real fulfillment of the promises of the early fathers of air power doctrine. Previously, many unfulfilled or partially fulfilled promises about air power's effect and what it could do left

strategists wanting. In previous wars, the Air Force was poorly prepared tactically to apply air power to the war on the battlefield. Many resources had been pumped into a strategic bombing emphasis that ruled over the Air Force at the expense of tactical interdiction of the battlefield. But in the Gulf War, things were different. A synthesis was achieved between strategic and tactical use of air power. This new strategy, combined with technological advances, demonstrated a powerful result that changed the face of air power for the future. The decisiveness of air power's ability to affect the outcome of war or conflict was never proven more substantially than during Desert Storm.

Thus, culling the lessons learned from this success and applying them to training and doctrine so the Air Force and the other services could benefit was an important step. As the other services watched the formulation of Air Force doctrine following the Gulf War, many were curious to see what would and would not be included from those lessons learned. The key to the doctrinal debate would be the "new" roles and missions the Air Force would adopt as a result of the Gulf War.

The key to the vision would be how air power is employed in future wars based on air power's short historical application, and its recent success in Desert Storm. One part of this vision was recognized strongly by AirLand Battle doctrine enthusiasts--following in the footsteps of the Gulf War, there was no BAI mission, just AI. With BAI not appearing in Air Force doctrine as a separate mission, the Army soon got the message as to where the Air Force stood on this issue.

Overview

This paper addresses the question, “what happened to Battlefield Air Interdiction?” and what that question has to do with the development and evolution of Air Force doctrine. The answer goes much deeper than just the simple disappearance of a mission term from warfighting lexicons. The disappearance of the BAI mission represents an evolution of Air Force doctrine--not just a conflict with the Army. It’s an unfortunate side-effect that this action also affected Army doctrine. In today’s joint environment, service doctrinal changes are prone to affect interservice operations--that should be expected. But BAI’s disappearance none-the-less demonstrates a maturing of air power doctrine. This maturing went away from long-held strategic air power only, or tactical air power only doctrinal focuses, to synthesize these approaches--something that was long overdue. The Air Force thus combined tactical interdiction doctrine and strategic attack doctrine in the Operation Desert Storm air campaign plan to successfully produce operational shock on the enemy across the entire theater.

Using Air Force, Army, and Joint doctrines as a backdrop, and taking a look back at history, this paper addresses the issue of BAI, both as a mission, and as a concept. After defining the terms close air support (CAS), BAI, and air interdiction (AI) as missions of the Air Force role in force application, an examination of BAI is conducted in the historical contexts of previous air wars. This historical look at battlefield interdiction through each of the different wars, and its development through the 31 Initiatives will demonstrate the transition from a doctrinal mindset of strategic air power, to one favoring tactical air in support of ground maneuver warfare. The heart of the paper goes through Air Force doctrinal development, to the synthesis that lead to the air plan for the Gulf War.

Using the example of the evolution of the battlefield interdiction mission, and a variety of employment techniques from the Gulf War, this monograph will prove that BAI--the concept--has never really gone away. The paper finishes with a look at important lessons learned about BAI and the relationship between battlefield interdiction and the idea of keeping air power doctrine flexible to support the theater Joint Forces Commander (JFC)/Commander in Chief (CINC). The paper concludes with some thoughts by the Air Force Chief of Staff, General Ronald Fogleman on the development of an air power doctrine and employment strategy he calls asymmetric force strategy.

BAI provides an excellent opportunity or laboratory to examine an idea for air power that has come full-circle. The lessons learned from this debate over the years can provide great insight into the development and incorporation of future methods of employing air power, especially with regard to the battlefield. Many times when examination and analysis like this is done, emotional reactions often overshadow reliable and objective analysis, leading to the proverbial "missing the forest for the trees." Unfortunately, this problem only leads to a false identification of the bottom line.

Doctrine provides an excellent baseline from which to work--that is its main purpose. But the bottom line in warfare is that which leads to success and achievement of the objectives--victory. When the objectives are met, and success is achieved through means that may be perceived as undoctrinal, perhaps the means underscore the fact that doctrine doesn't always have to be 100% correct--that's an unattainable goal. Rather, doctrine should be just accurate enough to get strategists heading in the correct direction to achieve success--then employed in a flexible way to achieve the desired military objectives and end state.

CHAPTER 1: DEFINING CAS, BAI, AND AI

Each time a revision of US Air Force Basic Doctrine is put into print, doctrinal roles or missions are assigned and defined to determine how Air Force aircraft will be used during the next war. Roles and missions are important to each service because they divide the workload for systems and forces to be used in war. The roles and missions debate has been perhaps the biggest area of contention since the Gulf War. With roles and mission debates, Bottom-Up Reviews (BUR), and Quadriennial Defense Reviews (QDR) always looming on the services' horizons, the focus of roles and mission continue to be being a hot issue following the Gulf War for two particular reasons.

Former Air Force Chief, General Tony McPeak summed up the importance of roles and missions like this:

“At the heart of the “roles and missions” issue is the matter of how to divide the work we will do together on the modern battlefield...if we get it right, we can be stronger as a country; all of us together can gain...the (theater) CINC’s principal subordinate commanders have lessor, not well-specified responsibilities. Defining these responsibilities (“dividing the work”) and describing how they will be accomplished is what “roles and missions” is all about.”¹

Definition Problems

Certain air power roles or missions have been around longer than others. A problem that exists today in defining each of these missions is that these terms are defined in so many different joint and service specific doctrinal publications. Selecting a specific definition can be as diverse as selecting a particular manual. Complicating the issue further, each and every combatant and functional command may further define these supposedly doctrinal missions.

Top all that off with the addition of combined or coalition doctrinal definitions, and a very murky environment for defining air power, or any doctrinal missions, begins to emerge.

Ideally, each service's own doctrinal manuals should be the cornerstone or foundation for all the other definitions of terms and missions. But joint and combined warfare have complicated this approach. Commonly, mission definitions are not quite the same across the new spectrum of doctrinal manuals. While many of the differences may be minor, it still leads to an ever increasing gray-area in just what vernacular each service uses to define its missions, and consequently, what the JFC/CINC will use in a conflict. While the Joint Staff's J-7 (Joint Interoperability) Branch is charged with being the authority in defining joint missions, this problem will likely continue, and will further complicate interservice and international expectations.²

Defining CAS, AI, and BAI

Doctrinally, the definitions of CAS and AI have changed very little over the last 30 years. What has changed is the addition of BAI. BAI was added as a subset of AI to compensate for the lack of responsiveness to the battlefield needs for AI by the ground commanders. The definitions of AI and CAS are, according to Joint Publication 1-02:

“air interdiction--Air operations conducted to destroy, neutralize, or delay the enemy's military potential before it can be brought to bear effectively against friendly forces at such distance from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required.”

“close air support--Air action by fixed- and rotary-wing aircraft against hostile targets which are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces. Also called CAS.”³

No joint, doctrinal definition for BAI currently exists. The 1986 version of Army's FM 100-5, the only broad-based doctrine manual to carry a definition of BAI, defines it as:

"Air interdiction attacks against targets which have a near term effect on the operations or scheme of maneuver of friendly forces, but are not in close proximity to friendly forces. The primary difference between BAI and the remainder of the air interdiction effort is the near term effect in support of the land component commander's scheme of maneuver. BAI attacks require joint coordination at the component level during planning and may require coordination during execution. BAI is executed by the air component commander as an integral part of a total air interdiction effort."⁴

BAI, by virtue of being a type of AI, is obviously not CAS and relies on similar rules as AI for employment. The term "battlefield air interdiction" was first coined officially in 1977 by Robert S. Dotson, an Office of Management and Budget security examiner, and Air Force Reserve officer. Explaining the focus of the main air to ground battle would occur against "the (Warsaw) Pact's second echelon," he,

"coined a new term battlefield air interdiction (BAI). In explaining the new term, Dotson noted that AFM 2-1, Tactical Air Operations--Counter Air, Close Air Support, and Air Interdiction, did not differentiate within the air interdiction function relative to the forward edge of the battle area (FEBA). He meant the term battlefield interdiction to refer to that portion of the air interdiction function in support of friendly ground forces beyond the range of weapons organic to those ground forces."⁵

The difference between AI and BAI is responsiveness. If an enemy formation is detected in the second echelon area, that means it may be only hours (especially if its moving) from the close portion of the battlefield and must be engaged soon. Keeping these second echelon forces from influencing the close fight is what is known as shaping the battlefield. BAI was designed to be a ready interdiction force which can strike the enemy with only a few hours notice closer than regular AI to friendly troops. BAI gives the ground commander flexibility

because he can use his strong heavy maneuver forces to win the close battle, while at the same time influencing the second echelon.

For ground commanders awaiting to attack or defend into the teeth of an enemy, defeating the second echelon threat can be and often is a key to battle success. Obviously, it cannot be overstated that corps and division commanders are concerned about the threat that lies before them out on the battlefield. With the size and complexity of some of today's world hot spots, keeping the enemy from engaging in a close fight may not be a matter of choice--they may already be there. If that threat is joined by second and deeper echelon forces, the corps and division commanders concern becomes more pronounced because the force ratios he may have had in his favor are now about to change dramatically for the worse. Air power can help to alleviate the problem by interdicting those second echelon and deeper forces. That was the design of the BAI concept.

BAI the Concept versus BAI the Mission

Certainly, there is a demonstrated need for the concept of battlefield interdiction. But, the question that bears asking is does BAI really need to be a separate doctrinally defined mission? This differentiation between BAI as a mission and BAI as a concept is an important one. As a concept, BAI can be used freely and flexibly whenever and wherever air and ground planners need additional fire power to affect the battlefield--it doesn't even need to be specifically called battlefield air interdiction--it could be called by the many other terms its been called in previous wars (i.e. tactical interdiction, battlefield support, etc.).⁶

BAI as a doctrinally defined mission, however, becomes much more specified and regulated. As a specified mission, BAI requires the JFACC to allocate sorties directly, which

takes away his flexibility to support the JFC's intent. Doctrinally defined, BAI must have specific distances associated with it--taking away planning and employment flexibility. These distances must become lines on a map; relationships to the Forward Line of Own Troops (FLOT), and Forward Edge of the Battle Area (FEBA), which in-turn make the battlefield a linear environment--a concept that restricts planner's flexibility.

For these and other reasons, air power's flexible effect on the battlefield is negated and becomes regimented. As a doctrinally separate mission, instead of being a force that is enhanced by the capability to provide fire power to the battlefield unpredictably from the air, BAI becomes just another predictable indirect fire weapon which can be eliminated by effective use of surface to air threats.

From the earliest usage of the term, airmen have had a certain hesitancy to the BAI mission. Almost immediately after Robert Dotson coined the term, the Air War College protested the fragmentation of the air interdiction mission. Colonel Robert Rasmussen wrote in 1978, "There is no need to fragment it, and the results could be degrading not only to the clarity of roles and missions but, more important, to combat effectiveness."⁷ If it looks like AI, sounds like AI, and employs like AI, then the BAI mission was and always has been a subset of AI.

The Air Force views air interdiction as a comprehensive mission that should not be fragmented. Overall, the effort of air interdiction effort should support and be derived from the JFC's guidance. This was especially true during Operation Desert Storm. General Larry Henry, key planner in CENTCOM's "Black Hole" planning cell has this to say about BAI:

"The term BAI is offensive to us because we oppose subdividing the interdiction campaign into small packets, which would only weaken its overall impact and make it more difficult to plan and execute from a theater

perspective. That is why we always talk "interdiction"--to encompass the total theater battle."⁸

Indeed, in agreement with General Henry's comments, the new Air Force Doctrine Manual, *Air Force Basic Doctrine* draft uses the term interdiction in precisely that vein.⁹ BAI is simply a fragmented, subdivided form of AI and therefore is not necessary as a separate doctrinal mission--so says the Air Force. The Army however, has a slightly different view.

General Robert Scales, author of the Army's official account of the Persian Gulf War, *Certain Victory*, has this to say about the importance of BAI in the Gulf War to the Army:

"The difference between air interdiction and BAI is critical. Whereas AI reaches deep to strike strategic targets approved by the CINC, BAI attacks targets nominated by corps commanders that are closer to ground tactical units. BAI provides one of the most powerful means for the corps commander to shape the deep battlefield...For example, the culminating ground operation of Desert Storm required that Iraqi chemical delivery systems, especially artillery, be destroyed. Equally essential, the Republican Guard would be battered...By targeting just those threats, (General Fred) Franks sought to "shape" the battlefield to facilitate the movement of his own forces...The function of BAI, therefore, is not only to attrit the enemy but, more importantly, take away his freedom of maneuver...Since BAI was most essential to Generals (Gary) Luck and Franks for shaping the battlefield...they trusted it would be available."¹⁰

BAI seemingly gave the Army more security in employing interdiction. The Army enjoyed the guarantee of BAI mission allocation available to them directly as their own personal air force. Taking the BAI mission away from them was like taking away artillery or other fire support weapon systems they had grown accustomed to using--they weren't happy about it. Perhaps they had never seen how battlefield interdiction was used flexibly in a variety of different ways throughout history to achieve success on the battlefield. Perhaps they just needed a look at the concept of battlefield interdiction in an historical construct to understand

that air power works better when its not tied to a doctrinal mission directive. Now is a good time to provide that view.

CHAPTER 2: BAI THROUGHOUT HISTORY

The concept of interdicting enemy forces on the battlefield with air power has been around for a long time. The purpose of this historical section is to demonstrate the impact of battlefield interdiction on every war Americans have participated in since World War I; when aircraft first roamed the skies. While the lessons learned about the use of tactical air power's effect on the battlefield were often ignored or forgotten in the interwar periods, battlefield interdiction returned each time to make its mark on each conflict through initiative and adaptation. Battlefield interdiction was derived from the earliest applications of air power in war because of its unique ability to bring shock and massed firepower effect quickly from overhead--where the enemy is usually least protected.

World War I

Interdicting fighting forces from the sky inspired early air power theorists to envision a new means to break the stalemate of trench warfare. Many of the early air power theorists really began their writing during the interwar years. But, much of what they wrote about was based on the experience gained through observation of aviation's first impact during World War I. Technology's play in World War I was enormous. The basic struggle of learning to utilize all the new weapons that were developed to try and break the stalemate was a genuine war technologies laboratory in the making. New types of artillery, machine guns, radio communication, tanks, gas and different types of rifles were all experiments for employment and affect. Air power too was in its experimental phase--as it seems to be throughout every war it has participated in. All of these new weapons competed for employment, limited

funding, and usefulness with every inventor claiming that each was the new miracle weapon that would win the war.

Germany took the lead in the skies by developing the Fokker bi-plane: a fighter aircraft far superior to any other. With its development Germany established the first instance of air superiority. But Germany also saw air power used in a much different way against them in the Battle of Somme, 1916. For the first recorded time in history, British pilots used their aircraft to strafe German trenches and battle positions with devastating effect--the modest, early beginning of BAI.

Germany, impressed by the British battlefield attacks, continued developing other types of aircraft to take advantage of its rule over the skies. One of these designs was specifically targeted to attack troops and equipment at the front lines. Dr. Frank Futrell, former Air University historian writes, "By 1917 the Germans also developed an armed Junkers strafing aircraft that was especially designed for attacks against troops and equipment."¹¹ With this development, Germany now possessed an aircraft to support the tactic of battlefield interdiction.

Once Germany had the equipment to do the job, they didn't hesitate to take advantage of the opportunity. Richard Hallion, Air Force historian writes,

"The development of special-purpose battlefield attack airplanes coupled with the appearance of the swing-role bomb-dropping fighter in 1917 meant that air power could exert an occasionally profound impact on land warfare right at the front itself. By 1918, troops at the front were supported by (or exposed to) close air support (then termed "trench strafing") and battlefield air interdiction (then termed "ground strafing").¹²

Thus, the concept of battlefield interdiction was born.

World War II

The interwar years brought continued expansion to this new concept/tactic. The greatest example of this thinking was seen in the development of blitzkrieg.¹³ By teaming air power with tanks and motorized infantry, blitzkrieg (translated--lightning war) was designed around swift maneuver and the ability to strike boldly on a narrow front with combined, massed firepower effects. While this strategy was attributed to German planners, the writing behind the strategy is generally associated to two British maneuver warfare authors; J.F.C. Fuller, and Basil H. Liddell Hart. David MacIsaac, author of *"Voices from the Central Blue"* had this to say about Fuller and Liddell Hart's contribution to combined arms warfare:

"Blitzkreig warfare as employed by Germany owed much to their (Fuller and Liddell Hart) ideas and, contrary to popular assumptions, involved aircraft at a level equally important with tanks and motorized infantry. Its employment in France and Russia in 1940 and 1941 depended heavily on coordinated--in fact leading--air attacks."¹⁴

Using aircraft with armor and mechanized infantry was an important development in affecting the battlefield--the first deliberate development of an air-land team.

With this concept continually evolving, the Allies too began to use aircraft in conjunction with maneuver forces to affect the battlefield. The Allies broke air interdiction into two categories; strategic and tactical. While the Allies were certainly more focused on strategic interdiction, especially in the early part of World War II, a gradual need was perceived to do more at the tactical level. Thus, the concept of battlefield interdiction slowly gained momentum. The results achieved in North Africa during Operation Strangle, at Salerno, and at Anzio all saw gradual improvement both in tactical development and employment. Ultimately, the progression of success in these previous engagements led to the necessity of including

battlefield air operations in Operation Overlord in 1944. Eduard Mark, author of Aerial

Interdiction, describes the importance of tactical interdiction to Operation Overlord:

“The Allied invasion of Normandy in 1944 was aided by the most intensive interdiction campaign yet waged. The purpose of this great effort, as in earlier landings, was to prevent the Germans from concentrating their forces more quickly by land than the Allies could by sea. The success of the Allies in slowing the movement of the German strategic reserves was certainly much greater than it had been at Salerno or Anzio, and the effect on German supply probably more severe than it had been during Strangle. These results can be viewed as proof of the old adage that practice makes perfect, for little was new about Allied interdiction in Normandy--it was, indeed a kind of summation of all that had gone before. In its broadest outlines, the Allied plan was an application of the three-phased design for a combined arms offensive.”¹⁵

The success attained by American tactical air power in both Europe and the Pacific Theaters, especially on the battlefield, had lasting effects on air power theorists, and also on the writers of air power doctrine. The new Army Air Corps (USAAC) doctrine manual for air operations, FM 100-20, Command and Employment of Air Power, “established three priorities of air missions, a ranking basically still followed by the U.S. Air Force today: air superiority, strike, and battlefield air support.”¹⁶ In addition to historical experience, the BAI concept now had a doctrinal foundation--even though the Air Force was still part of the Army.

The New “Air Force”

In 1947, shortly after World War II ended, the Air Force became a separate service. While it was an exciting time for airmen, it was a difficult time to be piecing together a separate Air Force. Two things combined to make the timing difficult; the post-war draw-down, and the rise of the nuclear-age. Following the separation from the Army, the Air Force engaged with the other services into a massive political food-fight for budget resources. With the ushering in of the nuclear-age, terms, forces and equipment from World War II began to

take on a whole new look. Being able to conduct nuclear operations became the key to winning the next war. No longer focused on conventional operations, the services began terming everything that involved nuclear operations, “strategic.”

The focus of operations and procurement became almost solely strategic as the Air Force began to place most of its eggs into the strategic basket. Strategic Air Command (SAC) was the “money pit” of the Air Force, getting most of the emphasis in terms of resources, doctrine, training, and development. With this myopic focus on the strategic arena, all things tactical nearly evaporated--including battlefield interdiction. As with the pre-World War II period, the main debate was about whether to be a versatile, flexible Air Force, or a specialized one. Specialization won out again (ignoring an important lesson learned from the previous period, a mistake the Air Force will make once again later in the 1950’s and 1960’s) and the Tactical Air Command (TAC) became almost extinct at the cost of the new “strategic” focus. The results and errors of this strategy were seen in 1950, as America prepared for involvement in military operations in Korea.

Korea

To say the Air Force was poorly prepared to conduct conventional operations in Korea is certainly a large understatement. In theater, the Air Force had a token force of strictly air defense fighters (F-80 Shooting Stars) stationed in Japan. That was fine if the mission was the defense of Japan against an airborne threat--but the need was the capability to attack into Korea. Because of its strategic focus, the Air Force had very little in the way of providing tactical battlefield support aircraft which could drop and shoot tactical type weapons. As a

result, the F-51 Mustang, a World War II vintage fighter aircraft, was dragged out of retirement and pressed into action in Korea to provide battlefield support.

The problem with the newer jet aircraft now in the Air Force inventory was three-fold: they couldn't operate off unimproved airstrips like the propeller driven Mustang; they didn't have rails and wing-racks for bombs and missiles; and they lacked the range necessary to be employed from paved airstrips in Japan. Amazingly, they proved adequate for battlefield interdiction and close air support in the Korean theater. General Matthew Ridgway, theater commander, commented on the contribution of battlefield support: "As for our airmen, without them the war would have been over in 60 days with all Korea in Communist hands...the flyers of the Air Force, the Navy, and the Marine Corps...destroyed much of the North Korean People's Army (NPKA) armor."¹⁷

As the war progressed, air power men and equipment in theater improved also. As these advances were realized, the problem was no longer one of forces, but of synchronization. The application of the air-land team concept used in World War II wasn't happening in Korea. Application of air in support of land operations was either disjointed, or completely separate. The main problem was command and control. Unfortunately, planning and execution of battlefield interdiction operations rarely occurred in the same command center.

The problem can be attributed to the fact that there was no overall air-boss to coordinate Air Force, Navy, and Marine air assets as in World War II. General Otto Weyland, commander, Far East Air Forces (FEAF) mentioned this particular problem in his final report on the Korean War. "In the *FAEF Report*, Weyland attributed most interservice problems affecting the employment of air power in Korea to the lack of a properly established joint

headquarters at the United Nations Command-Far East Command level.”¹⁸ Often times aircraft were employed individually, without coordination with ground maneuver forces. This led to situations where ground forces were not available to exploit the effect achieved by interdicting aircraft.

In the Pacific theater during World War II, General Douglas MacArthur had General George Kenney as his air component commander, or air boss. General Kenney coordinated the air plan to synchronize it with General MacArthur’s intent and campaign plans. That way, maneuver forces were able to exploit the success gained by air power attacks and seize the initiative to achieve overall battle success. Such was not the case in Korea. Air was employed too often without coordinated maneuver forces and this process of de-synchronized effort resulted in a lack of overall effect.

Two other factors were instrumental in the marginal contribution of tactical air power in Korea. The first was the fact that this war, in difference to World War II, was a limited war. Another factor different from other wars, and particularly key to aviators, was the tremendous increase in ground-based air defense. As Mark Clodfelter states in *The Limits of Airpower*, “Communist air defenses destroyed 1,041 FEAF aircraft during the war and caused B-29’s to only fly at night after October 1951.”¹⁹ Anti-aircraft artillery (AAA) batteries became so prevalent around high-value targets in Korea, aircraft were forced to fly higher into regions where their bombing was completely inaccurate.

Strategic bombers had little effect in this limited campaign. The pre-war SAC domination took its toll on the USAF’s ability to use tactical air power to interdict the battlefield. Dr. Williamson Murray, air power analyst key member to the Air Force’s *Gulf War Air Power*

Survey, points out in his article "*Air Power Since World War II*:" "across the board, from aircraft to training to doctrine to employment concepts, the USAF had to relearn many of the lessons of World War II."²⁰ The bulk of air power's contribution to the Korean conflict came in the form of tactical battlefield air support, which it was the least prepared for. Tactical air power is important, especially in a limited war and must be fostered in time of peace to prepare for war--this is a lesson that should not have been forgotten, or repeated--but it was.

Vietnam

The years between Korean conflict and Vietnam appear much the same as the interwar years between World War I and World War II, and those between World War II and the Korean conflict--more Air Force intraservice tension between SAC and TAC for missions, funding, and importance. Dr. Futrell says this about the interwar period: "Once again, the importance of tactical air power and its influence on the battlefield slowly melted away as the USAF got more and more engrossed in the possible nuclear conflict with the Soviets."²¹ Thus, by the time America's involvement in Vietnam was fully established, tactical air power was in a similar fix as before the Korean conflict--poorly equipped; little training, doctrine, and experience--ill-suited for another limited conflict.

TAC, in order to fiscally survive and have a purpose, ignored conventional operations and designed its aircraft around the ideas of supersonic pursuit, and delivery of heavy tactical nuclear weapons. They, in essence, became little SACs with the primary and almost only mission being the nuclear one.²² Since there was virtually no role for battlefield air support in

the burgeoning nuclear environment, its capability was pushed aside once again for modernization, and a purported lack of importance.

Ignoring the hard-learned lessons of the past, Air Force leaders pressed-ahead with the same myopic focus as their interwar ancestors forgetting the importance of keeping air power employment flexible by overlooking tactical air support to the battlefield. It was of this period of a lack of preparation for another limited war that Dr. Earl Tilford, historian, author, and former Air Force intelligence officer in Vietnam, wrote: "It was in the 1950's, probably more than in any other period of its existence, that the Air Force had set itself up to lose the war in Vietnam."²³

Lacking the proper aircraft, munitions, training, and doctrine to provide battlefield air support, the Air Force once again dragged propeller driven aircraft out of moth-balls to provide needed support for delivering a combination of munitions and providing the loiter time over the battlefield. The Douglas A-1 Skyraider, A-26 Maurauder, and the AC-47 are all examples of World War II aircraft that were modified to perform battlefield attack using nearly forgotten tactics and a variety of makeshift weapons. Despite their being built and developed decades earlier, each operated over the battlefield--more of a testimony to Air Force ingenuity and adaptation, than to modernization or doctrinal forethought.

Many of the aircraft used for battlefield interdiction demonstrated a lack of forethought about the design needs of modern aircraft operating on the modern battlefield. None of the jet-fighters used had self-sealing gas tanks, making them extremely susceptible to small-arms, and anti-aircraft fire--the main cause for aircraft losses during the war. Also, several of the aircraft used, such as the F-100 and F-105, were single engine aircraft, which added to the survivability

problem. Further, the black smoke exhaust produced by the jet engines left a smoke trail that made targeting easier for surface defense sites. All of this underscored the lack of preparation for tactical aircraft support operations on the battlefield.²⁴

But aircraft were not the only problem. A lack of operational and tactical doctrine development of battlefield interdiction operations lead to frustrating employment. Command and Control structure was extremely complicated--many makeshift structures operated autonomously throughout the war. Additionally, Navy, Air Force, and Marine air also operated independently of each other, once again watering down the effect of air power in theater.²⁵ Again, this points directly to a lack of preparation and proper emphasis between the Korean conflict and Vietnam on battlefield interdiction doctrine--a proven effective force in previous wars.

Despite the many problems, air power ingenuity and adaptability once again achieved significant results on the battlefield. Air power did not win the war, but battlefield interdiction demonstrated many times over the capability to bring devastating effect in a short period of time. It was decisive in many battles and engagements. Because of the many air bases actually located in-country, battlefield interdiction sorties could be on the scene in a matter of minutes. Throughout the conflict, personal testimony bears witness to the effect and importance of battlefield interdiction operations, such as the testimony from this American soldier:

“When you’re...pinned down under fire, and here comes the Air Force and they just drop the bombs right where they belong and they knock out what they are supposed to knock out...It’s a fantastic feeling. It’s more than thanks. You just can’t express it, really.”²⁶

Because of this effect, much of the offensive effort and attacks conducted by the North Vietnamese took place at night or in bad weather because the North Vietnamese knew the strength of air support, and its effect on the battlefield.

Lessons Learned?

The concept of battlefield interdiction certainly demonstrated its place of importance throughout history, yet it was virtually ignored during the three previous interwar periods (pre-World War II, pre-Korea, pre-Vietnam) in favor of a much more strategic air focus. During each interwar period, strategic air forces got most of the equipment, doctrinal attention, training, and political legislation--could the Air Force afford to make that mistake another time?

Important battlefield support lessons learned from each of the three wars also were largely dismissed. Maintaining a mix of tactical and strategic operations for flexible employment of airpower was forgotten following World War I, World War II, and Korea. Centralizing air power control under an air-boss and meaningfully including battlefield interdiction as part of an overall concept of maneuver were forgotten from both World War II and the Korean Conflict. Designing aircraft, munitions, tactics, and training which focused on tactical battlefield support and employment were all neglected leading into Vietnam. How could the Air Force afford to make those kinds of mistakes again?

Eventually, these lessons would be acted upon. They became the focus issue of adopting "AirLand Battle doctrine," the name given to the Army's new combined air-land team effort of conducting war as a result of the 1982 version of Army FM 100-5.²⁷ AirLand battle was the result of years of cooperation and communication between the Army and the Air Force in the

late 1970's based upon the experience and lessons forged in previous wars--especially Vietnam. In the middle of the 1980's, the Army and the Air Force Chiefs decided it was time to talk formally at the highest levels about how to do direct enemy battlefield and second echelon forces interdiction. The result of this interaction lead to what was called the "31 Initiatives."

CHAPTER 3: BAI AND THE “31 INITIATIVES”

Military Reform

As mentioned earlier, while the concept of interdicting the battlefield with aircraft had been around since the inception of the airplane in war, BAI as a mission term really had its genesis in the late 1970's and early 1980's. During the initial stages of the Reagan administration, lead by Secretary of Defense Casper Weinberger, the defense department began a rigid program of internal analysis. In NATO, the focus became how to defeat the Soviets in a large-scale conventional battle. Soon, studies were done all across the military establishment to determine what was being done right, done wrong, and where improvements needed to be made. It was this environment that inspired the development of AirLand-Battle doctrine based upon the established working relationship of the Army's Training and Doctrine Command (TRADOC), and the Air Force's Tactical Air Command.

Army/Air Force Cooperation

In the 1970's and early 1980's, the Army and Air Force had forged a working relationship dealing with the main enemy--the huge conventional forces of the Soviet Union. The focus was how to conventionally defeat them in a non-nuclear using a doctrine that combined ground maneuver units with air power to engage the enemy throughout the depth of the battlefield. One of the results of this work was the Air Land Forces Applications Agency (ALFA), a joint effort between the Army's TRADOC and the Air Force's TAC.²⁸ One of the fruits of this agency was the publication of a training pamphlet called General Operating Procedures for

Joint Attack of the Second Echelon (J-SAK) in 1984. J-SAK laid-out tactics, techniques, and procedures for the employment of BAI.²⁹

ALFA lead to other working agreements. The 1983 Joint Memorandum of Understanding, signed by both Air Force Chief General Charles Gabriel and Army Chief General Edward Meyer pledged each service to work together to employ AirLand Battle doctrine.³⁰ Also, in NATO, where the Tactical Air Working Party (TAWP) wrote two “key NATO policy statements: ATP-27A, Offensive Air Support, and ATP-33, NATO Tactical Air Doctrine.” Both were released in 1980 and updated throughout the eighties.³¹ They were regulations written to establish procedures to attack second echelon and deeper elements. The means were joint forces using the mission of BAI, working in a defined command and control setup. NATO was also responsible for the “Follow -on Forces Agreement (FOFA) of 1983” which identified how to strike and destroy Soviet follow-on forces using BAI.³²

The 31 Initiatives

With all this interservice cooperation as a backdrop, Air Force Chief General Gabriel and Army Chief General John Wickham decided to establish a board to “initiate an agreement of inter-service cooperation joint tactical training and field exercises based on AirLand battle doctrine.”³³ In their Memorandum of Understanding dated 21 April 1983, they stated “the opportunities are right, the level of joint interest is high and the valid military requirements exist to initiate an agreement.”³⁴

As a result of their memorandum, an “ad-hoc” group of officers from both services established under the supervision of the Deputy Chiefs of both services the Joint Force Development Group (JFDG). They met from November 1983 to May of 1984, and were

officially tasked to “concentrate on the conventional aspects of high-intensity warfare against a sophisticated enemy.”³⁵ One of their subtasks was to: “Increase cooperation in the development and coordination of deep attack/battlefield air interdiction/interdiction programs.”³⁶ The result of their work was the 31 Initiatives.

Initiative number twenty-one was “Battlefield Air Interdiction.”³⁷ This initiative officially codified work that was already being done with ALFA--the TRADOC/TAC cooperation, and, most especially in NATO with the TAWP. For the Army, this “seal of approval” made BAI official and meant it was time to include BAI into doctrine. BAI thus became an official doctrinal term in the 1986 version of FM 100-5.³⁸ From there, both FM 100-15, the Corps Operations doctrinal manual³⁹, and FM 71-100, the Division Operations doctrinal manual⁴⁰, as well as a multitude of other unit and fire support manuals all included lengthy explanations on the concepts and operating principles of BAI. These doctrinal entries were more than just one-liners. They were detailed, doctrinal procedures describing how to use BAI as another fire support mechanism to achieve battlefield success.

It’s obvious from all the testimony given to BAI in the many doctrinal manuals that the Army was comfortable with, if not excited by, the prospect of using BAI in war. BAI was an agreed upon mission with TAC, ALFA, and the TAWP. This mission was being written about, talked about, and practiced in joint exercises. The Army was counting on having BAI available and was trusting the Air Force to deliver all that they had promised through all the agreements, working groups, and initiatives. The trouble was, while all of these agreements and publications were being made, BAI was not working its way in totality into Air Force doctrine as a separate mission.

Current Air Force Chief, General Ronald Fogleman describes these events as problematic to Air Force doctrinal development:

“In the end, the Air Force itself defaulted on its doctrine development. The fact of the matter is that we turned doctrine development over to Tactical Air Command and the Army’s Training and Doctrine Command. We sent that whole task to the Tidewater Virginia area, and the result was the doctrine of AirLand Battle. For a long period of time, we effectively lost sight of the fact that AirLand Battle was a subset of airpower doctrine and not the doctrine.”⁴¹

The truth of the BAI issue rests in this: the Air Force, true to its slippery doctrinal leanings, never fully embraced BAI as a separate mission from AI--TAC did, but this was not a unanimous consensus across the Air Force. There were many important TAC generals within the Air Force who were genuinely interested in completely living up to everything that had been represented by the 31 Initiatives--but not every general was in this TAC mindset.

While all the 31 Initiatives-type agreements were being made, there was another group within Air Force circles who subscribed to a much broader use of air power--a combination of tactical and strategic airpower blended together which was supported by ground maneuver, rather than supporting ground maneuver. With the TAC generals on one side as the tactical, ground-support oriented group dubbed, the TAC Mafia, and a separate group of generals in a strategic/tactical blend group dubbed, the Air Power Men, the stage was set for a doctrinal showdown leading into the 1990’s. A square-off of ideas was brewing.

CHAPTER 4: A SHORT LOOK AT AIR FORCE DOCTRINE

This internal divide in air power thought is not unusual for the Air Force. Typically, over the years the Air Force has had trouble zeroing in on where it stood doctrinally. As Dr. Murray explains,

“Unfortunately, over the period since 1945, the Air Force has been generally cavalier in its approach to its basic doctrine, certainly in comparison to the Army and Marine Corps. Its clearest manual was written in 1943. As recently as 1979, it produced a doctrinal manual that a number of Air Force officers derisively but quite correctly described as “a comic book.”⁴²

Early Confusion

That cavalier attitude has been fostered by the Air Force’s early doctrinal beginnings. Compared to the other forms and means of warfare, air power was in its infancy. In the late 1940’s and early 1950’s, the use of air power in warfare was so new, there were many who believed that writing air doctrine would be a waste of time--by the time it was written, it would already be obsolete. Dr. Frank Futrell highlights these problems especially well in his comprehensive series, *Ideas, Concepts, and Doctrine: Basic Thinking in the United States Air Force*:

“Senior Air Force officers were said to have discouraged the preparation of air doctrine because they felt that air doctrines were too short-lived to warrant publication. Word of mouth generally sufficed to keep senior air commanders well abreast of Air Force policy, and it was much easier “to scrap the worn out doctrine that remains unpublished than it is to drop a doctrine that had been published...The reasons why the Air Force has been hesitant to engross its fundamental beliefs demand some explanation...some leaders felt that because of the lessons learned in World War II, the Air Force should not try to develop a doctrine based just on air power...still further, an Air University study in 1948 stated that the major “obstacle to writing air force doctrine in the past was the rapidity of the development of air power from a limited supporting role to its present position of pre-eminence in warfare.”⁴³

The divisive issue was whether the rapid development left room for the documenting of a set of guiding fundamentals or principles written down into doctrine. From the inception of the Air Force, that point has been one of contention--trying to take something complex and break it down into something basic. Again, Dr. Futtrell, alludes to the frustration, futility and difficulty:

“Until we accept the fact that all doctrine is imperfect...and that it is highly changeable we cannot hope for the issuance of doctrine...Air Force thinkers not only have found it difficult to face the task of codifying the Air Force’s fundamental beliefs, but, as the foregoing quotations reveal, they also have employed a diversity of discourse to categorize these fundamental beliefs.”⁴⁴

Put this all together and you get institutionalized apathy and confusion. Unfortunately, that aptly describes the early days of Air Force doctrinal development--an environment of little agreement or consensus.

USAF Doctrine Development: Who’s Responsible?

The confusion continued throughout the 1950’s and on into the 1960’s. “In the Autumn of 1961 it became evident to General LeMay (Air Force Chief of Staff) that even knowledgeable persons were no longer sure of what the Air Force stood for in the way of concepts and doctrine.”⁴⁵ While General LeMay and the Air Force Chiefs before him all felt that good doctrine was important, they never seemed to get the Air Force united on that front. But even General Lemay demonstrated another symptom of the doctrinal unity problem. He was the latest in a line of chiefs from the Strategic Air Command. The SAC leaders singular focus on big bombers and strategic air power served notice to the Air Force that SAC was the ruling elite in the Air Force. This kept in check any unanimity towards doctrinal development.

The reason--at least part of the Air Force (the TAC part) felt that the Air Force doctrine didn't serve their specific needs.

One other contributor to the doctrinal confusion issue lies in determining who is responsible for writing it. From one Air Force Chief to another, the responsibility issue was tossed about like a hand grenade. During one chief's tenure, the responsible agency was the Air Staff. During another, it became Air University's responsibility. This responsibility tennis match increased the confusion as to who were the real doctrinal experts. Soon, the mainstream Air Force didn't know who to believe and the responsibility problem simply poured gasoline onto the already burning doctrinal development fire.

USAF Doctrine in the 1970's

The Air Force continued to struggle doctrinally through the Vietnam war. When it was over though, there was a spark of hope that some type of Air Force doctrinal consensus might finally be achieved in the 1970's...but it was not to be. Instead, Air Force doctrine got more diluted and pigeon-holed with the previously mentioned agencies like ALFA, NATO, the TAC-TRADOC union, the continuance of SAC, etc., all going their own separate way. Colonel Dennis Drew, a doctrinal writer and analyst, summarized the post-Viet Nam doctrinal development period as having three particular problems: first, it ignored the war in Viet Nam; second, Air Force thinking became "muddled" about the fundamental tenants of warfare; and finally, doctrine had "very little information useful to the airmen in the field."⁴⁶

At the end of the seventies, the Air Force produced a doctrine manual, Air Force Manual (AFM) 1-1, previously mentioned as the comic book. Colonel Drew describes the frustration over the lackluster publication:

"The culmination of the trend was the so-called comic-book basic doctrinal manual published in 1979. This manual was visually appealing but wallowed in generalities, unsubstantiated assertions, and irrelevant quotations...the year 1979 was the nadir of Air Force doctrine. The basic doctrine manual published in that year clearly reflected neglect, misunderstanding, and general confusion."⁴⁷

The desired effect was to draw Air Force officers back into doctrinal unity and understanding.

Unfortunately, the manual had the opposite effect and Air Force officer apathy toward doctrine soared.

The one fortunate side-effect from the 1979 version of AFM 1-1 was it became a rallying point for those who thought air doctrinal progress had failed and could no longer put up with the situation. A rigorous debate began about the development and content of Air Force doctrine. As Colonel Drew points out, "a spate of critical and thought-provoking" arguments began popping-up everywhere in Air Force circles--the Air Staff, Air War College, Air Command and Staff College, and in professional periodicals.⁴⁸ This reinvigoration helped to get the focus off of things like the SAC-TAC conflict and back toward doctrinal questions that reflected how air power could be better used.

USAF Doctrine and AirLand Battle--The Rise of the TAC Mafia

With the movement of the 31 Initiatives and the many other agreements between the Army and the Air Force, momentum was generated to make air power doctrine focus more on conventional forces and tactical battles. The Air Force weighed-in heavily behind the Army's AirLand Battle doctrine with TAC leading the way in supporting the Army's conventional forces on the battlefield.

During this period, BAI doctrine flourished. For ground commanders who were greatly concerned about defeating second echelon Soviet conventional armored and mechanized

forces, the addition of BAI as a mission was welcome relief. With the assurance of the 31 Initiatives, Army ground commanders now knew they could count on direct and dedicated battlefield air support--that tactical air forces wouldn't disappoint them. In Europe and NATO, BAI became a standard mission. From training manuals, to large scale joint exercises, CAS and BAI were being implemented throughout both services. Commanders of TAC filled professional publications with promised support of tactical air to Army commanders on the battlefield.

In the 1950's and 1960's, SAC was the command that ruled. But now, Tactical Air Command had taken over as the new power-broker in the Air Force. Indeed, even the SAC commander, General John Chain was a former TAC flyer. General Robert Russ, the most senior of the four star generals in the Air Force, and commander of TAC, was the respected leader of the TAC Mafia. He was the spokesman for those who supported TAC's new focus of AirLand Battle support. He wrote:

"Supporting the Army is a vitally important part of the air force mission--whether it involves interdiction (as in BAI), close air support or counter air. Outside of strategic air defense, everything that tactical air does directly supports the AirLand Battle...Today we live in a vastly different world, but one thing hasn't changed: everything that tactical air does directly supports Army operations. Whether it's shooting down enemy airplanes, destroying a tank factory, attacking reinforcements or killing armor on the front line, tactical air's objective is to give friendly ground forces the advantage on the battlefield."⁴⁹

To the TAC pilots, this was more than a flexible way of thinking of air power--it was the interpreted gospel within TAC. Dr Murray saw TAC's focus as skewed the wrong way. He wrote: "at the beginning of 1990 Tactical Air Command proved incapable of conceiving of any air role for its forces other than serving as the Army commander's long-range artillery."⁵⁰

Incredible as it may seem, air power thinking had swung full-circle from a SAC strategic

bombing focus, to the new TAC AirLand Battle focus. But, this view of air power in support of ground forces was the TAC party-line, and those TAC pilots stood by their leader--flyers such as General Chuck Horner, soon to become JFACC of Operation Desert Storm.

The Rise of the Air Power Men

But also during the late 1980's, another movement was taking shape in Air Force doctrinal circles. There were those who thought the Air Force's new tactical focus on AirLand battle support was much too narrow--there needed to be a balance between strategic air power and tactical--the right mix to win the war from the air. To these new Air Power Men, history taught and supported the use of concentrated air power over a much larger front. The desired effect of using air power should not be just tactical--to effect the battlefield--but theater wide, affecting everything both tactical and strategic that effects where the enemy lives and breaths. Air planners envisioned an air campaign which could use air power's unique, multi-dimensional capabilities to effect the enemy over the entire operational spectrum.

The Air Power Men were a breed of air power thinkers different from the AirLand Battle doctrine supporters. Represented by Colonel John Warden, this group wanted to redirect earlier flaws in the employing of air power by using an air campaign designed to shock and dominate an enemy. Owing to failed ideas and lessons learned from previous wars about the gradual escalation of air power, Colonel Warden wrote a book entitled, *The Air Campaign, Planning For Combat*, while he was at National War College in 1988. The book was "an attempt to fill that gap (between the strategic and tactical levels of war) and to provide a framework for planning and executing air campaigns at the operational level."⁵¹ He sought to do this because he felt "almost nothing has been written since the immediate post-World War

II period that deals with theory and practice at the operational level, especially for air warfare.”⁵² The book emphasized a balanced mix between strategic air power (not-nuclear), and tactical air power, which had been very much neglected in the past.

In addition to battlefield support and interdiction, air power should use a new-concept, strategic attack--deep attacks designed to strike the enemies war-making infra-structure. Targets like leadership/command and control, manufacturing, energy-source production, key war-making production facilities, as well as fielded fighting forces were the focus of the entire air effort. The key was to not strike them individually, but simultaneously and audaciously--in a parallel fashion, or, as Colonel Warden describes it, “inside-out” air warfare. By massing against these targets, the enemy’s will and ability to conduct warfare would be choked-off--the enemy would be forced to give-up due to its lack of ability to conduct warfare. This was the central idea to the Air Power Men.⁵³ While some saw Colonel Warden’s views “war can be won from the air,”⁵⁴ and “the air campaign may be the primary...effort in a theater,”⁵⁵ as fresh and exciting, others saw them as insupportable, even heretical.

The TAC Mafia versus The Air Power Men

Despite Warden’s defining work on the air campaign, the 1980’s were dominated by TAC, who saw air power’s role as a supporting force to the ground commander’s scheme of maneuver. Warden’s focus was much different from the TAC AirLand Battle doctrinal supporters. He and his Air Power Men had also gained a group of believers who ran in particularly high levels within the Air Force.

“It was no secret that General Dugan, Air Force Chief of Staff, thought highly of Warden. When Warden’s book, *The Air Campaign: Planning For Combat*, was released by National Defense University Press in the fall of 1988, Dugan--then a three star--ordered that a copy be given to every officer on the Air Staff.

Dugan himself wrote the cover letter that accompanied the distribution of Warden's book."⁵⁶

Many other influential generals were also in support of the Air Power Men, some on the Air Staff, and especially those who were on staff at the Air University also favored Warden's line of thinking.

Thus, air power doctrine settled into two camps; the TAC Mafia, led by General Russ, who supported the tactically focused AirLand Battle doctrine; and the maverick Air Power Men, led by Colonel Warden, who supported air power in a balanced (tactical and strategic) overall air campaign approach using parallel warfare and strategic attack. The stage was set for a confrontation. It was against this backdrop near the end of the 1980's that the Air Force prepared to conduct its next great war. This backdrop would also have a key influence on the future of the mission of BAI.

CHAPTER 5: BAI AND THE GULF WAR

The Air Power Men Get the Call

There are those who attribute the new concepts in airpower directly to the fateful day in August of 1990, when General H. Norman Schwarzkopf made his call to USAF headquarters at the Pentagon. When he called, originally asking to have General Chuck Horner assigned to U.S. Central Command (CENTCOM) directly, he also asked for something that was unusual for a theater commander. He asked General Michael Loh, the Vice Chief (sitting in for General Michael Dugan, the Chief, who was TDY), "You know, we have a decent plan for air/land operations, but I'm thinking of an air campaign, and I don't have any expertise--anybody here who can think in those terms and look at a broader set of targets or **a strategic campaign.**"⁵⁷

What makes General Schwarzkopf's call to Headquarters USAF, on the eighth of August so opportunistic, was the fact it gave the Air Power Men the opportunity they needed to apply their concepts for the employment of air power to the forthcoming Gulf War. General Loh received the call and got Colonel Warden and his air staff planners working immediately on an air plan (one which they had already roughly sketched-out prior to the call). The Air Power Men now had one foot in the door to developing the Gulf War air campaign plan. General Loh knew there may be problems on the periphery when he took the call--problems with how General Russ and the TAC planners would react to Pentagon air planners carrying the ball.⁵⁸ As Colonel Edward Mann, author of *Thunder and Lightning: Desert Storm and the Airpower Debates*, points out:

“Despite the fact that the Desert Storm air campaign plan, as finally developed, struck some airmen as appropriate to the task (Gen Merrill A. McPeak, the “new” Air Force chief of staff, called it “a no-brainer, straightforward:”), it generated extensive controversy, even among airmen (like General Russ). For example, they questioned the role of the Air Staff in developing the plan, the appropriateness of the strategic attack phase, and the balance between deep attack and surface support.”⁵⁹

Truly, the Air force doctrinal war was being played out in the very preparation and planning for the Gulf.

Had General Schwarzkopf left the planning to CENTAF and General Horner’s staff, Colonel Warden and his Air Power Men may never have been heard from. Colonel Mann agrees in this assessment:

“Certainly, the air plan would have been significantly different if Warden had not acted as he did, if Schwarzkopf had not asked for Air Staff assistance, and if Schwarzkopf had not so adamantly (and correctly) designated Horner his single commander for air. Building the air campaign around the surface scheme of maneuver, as suggested by FM 100-5...might have fulfilled those predictions of thousands of coalition casualties.”⁶⁰

Since most of the planners on the CENTAF staff were TAC aviators, one could logically assume the air campaign plan would have reflected an exclusive AirLand Battle-type approach attempting to defeat Iraqi forces on the battlefield using a combination of CAS, BAI, and Interdiction missions. Fortunately, for the troops who fought the ground war and sustained an incredibly small amount of casualties, that did not happen.

Colonel Warden gave the plan the name “Instant Thunder,” to let everyone know that this was not the gradual-escalation type of approach to using air power seen in Vietnam.⁶¹ The plan was briefed first to General Schwarzkopf, then to General Colin Powell, the Chairman of the Joint Chiefs of Staff. Both gave their approval. The final test would be whether General Horner, the JFACC and acting CINC in Riyadh, Saudi Arabia would approve.

A Face-Lift for the Air Plan

For the Instant Thunder plan, this final step of gaining General Horner's approval would be by far, the most difficult. General Horner did not appear pleased with what was happening. The biggest problem was that a "pentagon staffer" was in General Horner's theater briefing an air plan that he, the JFACC had no part of up to this point. Other problems General Horner had were the name "Instant Thunder," and also the fact that the plan basically ignored the fielded Iraqi forces for air attacks--there was too little tactical emphasis on interdicting fielded forces.⁶²

From this point on, General Horner took control of the situation. He kept some of the plan, and a few of Colonel Warden's key staffers that had attended the briefing--but sent Colonel Warden back to the Pentagon. Next, he hired on General Buster Glosson, a trusted and experienced planner to head the air campaign planning process and gave him all the necessary authority and personnel he needed to develop the plan as he saw fit.

General Glosson, also a TAC aviator, was a trusted commodity to General Horner and was well-connected, with previous ties to General Schwartzkopf. Adept at mastering the political struggles at the Pentagon, General Glosson had a fiery personality that would pump life into the air campaign planning process--just what General Horner would need while he was taking care of the endless list of duties as acting CINC. While General Glosson was a TAC man, he also was an astute aviator and operator. He saw the genius in the Instant Thunder plan--but was also concerned about the Iraqi fielded forces. As General Bernard Trainor describes, "Glosson liked the idea of taking the war to Baghdad at the outset and striking deep into Iraq instead of focusing on bombing troops in the field, as Horner was inclined to do."⁶³

Incredibly, General Glosson became the blend of the TAC Mafia and the Air Power Men the Air Force and the Gulf War air campaign plan needed. Michael Palmer, historian and student of the Gulf War, describes the synthesis General Glosson brought to the plan:

“Like Warden, Glosson believed that technology had “caught up with Billy Mitchell’s vision” and that air power alone could defeat Saddam Hussein. But Glosson, like Schwartzkopf, thought Instant Thunder a somewhat overly ambitious application of air power too...To Glosson, Instant Thunder gave insufficient attention to Iraqi ground forces.”⁶⁴

While it all happened quite unceremoniously, the blend of strategic and tactical doctrine the Air Force so desperately needed over its complete but short history, finally occurred in Operation Desert Storm. Following decades of doctrinal futility and frustration, the Air Force finally had the doctrinal synthesis between strategic and tactical air power it so desperately needed--born through Colonel Warden and General Horner, delivered by General Glosson.

By December, it was apparent that nearly 3,000 sorties a day were going to be used to fly the distributed missions. This effort was a tremendous burden, one the air planning staff was not sure they could maintain throughout the war. All the different mission types made developing the ATO difficult. Some of this had to be trimmed down and streamlined. Something had to be done to make this process easier.

The Elimination of the BAI Mission

Management-wise, cutting the number of mission allocations down made good-sense. One of the results of those decisions, made by the senior officers on the staff, was to eliminate BAI as a separate mission--it was part of AI. This decision lead to the greatest parochial battle between the services of the war--the kind of thing that no-one needed, but it seemed everyone

got involved in. Certainly, this difference of opinion over who controls the air effort, sorties, and targets is nothing new, it had happened before in nearly every other war air power was a part of. The BAI mission just happened to be the trigger event for the Desert Storm fiasco.

While BAI was eliminated as a separate mission, it actually ballooned as a concept. Generals Horner and Glosson both knew the importance of interdicting Iraqi fighting forces on the battlefield. Both Generals employed some old but successful techniques, and a few new ones, to provide the needed battlefield interdiction. "Fast-FACs,"⁶⁵ "Killer-Scouts,"⁶⁶ "Kill boxes,"⁶⁷ "Strip-Alert Aircraft," and "Tank-Plinking"⁶⁸ were all missions that were used to interdict the battlefield. General Glosson also scheduled "uncommitted-sorties" onto the ATO to take-off and fly where ever they were needed on the battlefield directed by Airborne Command, Control, and Communications (ABCCC) EC-130 aircraft to specific places of targeting need.⁶⁹ A-10 aircraft were also used flexibly out ahead of the FSCL to interdict armor, mechanized, and motorized vehicles on the battlefield.⁷⁰

None the less, to the ground commanders, all of these pseudo-BAI techniques and procedures were smoke and mirrors--they wanted their BAI. General Frederick Franks, commander of VII Corps, had operated for years in Europe with Air Force and NATO forces employing BAI successfully in a multitude of joint exercises. In Europe, BAI was king--it was the proven way of interdicting the battlefield and it gave the ground commander direct input in interdicting targets. But BAI wasn't a mission in this theater and this created a problem between the corp commanders and the JFACC/JFC.

Without BAI as a mission in Desert Storm, the ground commanders were concerned they were not going to be able to shape the battlefield in preparation for the coming ground war.

General Franks' main concern was the target nominations his units were submitting. In his opinion, only a small percentage of the nominations were actually being attacked. General Franks felt his units were being shorted or denied air sorties in favor of an unnecessary continued strategic bombing effort. According to Rick Atkinson, author of *Crusade: The Untold Story of the Persian Gulf War*, General Franks "grew agitated in his calls to Calvin Waller, the deputy CINC. "Cal, I'm not getting my share," Franks complained. "I need your help."⁷¹

Unfortunately, General Franks was a victim of the CENTCOM chain of command--he was not kept in the loop by his higher headquarters. He neither knew, nor was informed about what was happening with the air effort. He didn't know that hundreds of sorties a day were being poured into the battlefield preparation effort. He didn't understand the effort that was being generated by the CINC in the now infamous "great scud-hunt," which robbed the tactical effort of many more sorties. He also did not understand the ban General Scwhartzkopf had put on interdicting targets positioned in front of VII Corps. Colonel Richard Lewis, chief targeter in the "Black Hole" air planning center describes the directive given by General Schwartzkopf, "the CINC would not allow the JFACC to target the Iraqi forces in the western zone. The CINC wanted to limit activities in this area for fear of compromising the coalition attack plans."⁷²

Other targets were not scheduled on the ATO because they were already struck, or because the coordinates submitted were inaccurate and, consequently there was no target there. Aircraft sortie availability and maintenance problems also contributed.⁷³ All of these

things combined to portray low numbers to the corp commanders, but the numbers were not necessarily low in consideration of the many diminishing factors.

With all these considerations affecting the battlefield preparation effort, its easy to see why General Frank's targeting numbers were low--but the control complaints kept pouring in. As reported in *The Gulf War Air Power Survey*, General Horner stated, "I knew that was going to happen"...Horner's concern that the theater ground commanders would press General Schwartzkopf for control over air support sorties dated from at least 11 November 1990."⁷⁴ In order to prevent a break-down of the system and to prepare for the battlefield needs of the ground commanders, General Horner had attempted to give the ground effort more sorties than they needed. But the appetite for battlefield preparation sorties appeared insatiable. He knew that in the past, efforts like this watered-down the air power's overall effort. He "believed that they (the corps and division commanders) acted on a misunderstanding of the best use of air power and the tendency of Army corps to fight in isolation."⁷⁵ But at the same time, the Army commanders want to see all the moving parts of their operation, this is important for their span of control--this conflict will most certainly continue in future wars.

Despite the coordination difficulties and complaints between air and ground commanders about lack of sorties and targeting effort, that point should not overshadow the many successes in the joint operation. This is especially true of the use and success of tactical air power on the battlefield--better than it had ever been in history. Nearly two-thirds of the entire air effort in Desert Storm went into tactical battlefield support and interdiction. This unprecedented effort contributed greatly to the success of the ground effort, and clearly enabled the success of maneuver forces with such an incredibly low numbers of casualties.

CHAPTER 6: BAI LESSONS LEARNED

Problems that plagued battlefield interdiction operations in previous wars were simply not a problem in Desert Storm. Specific aircraft, weapons, tactics, doctrine, and training were all apparent as the coalition prepared for the war. The command and control problems were managed with an assigned air boss, the JFACC--the critical enabler of the battlefield interdiction effort. Additionally, technology gave tactical aircraft capabilities they had never enjoyed before; the ability to pound the battlefield around the clock, day and night with precision optics; better detection systems than ever before; and precision weapons that greatly increased accuracy and efficiency. All of this greatly enhanced the ability to mass effect and firepower. Tactical battlefield interdiction had finally evolved. No longer just BAI, tactical interdiction was a flexible concept that waged destruction and influence across the battlefield like never before.

Those who have studied tactical air power on the battlefield and know the deficiencies and the errors the Air Force has made in the past see this evolution as an opportunity. The balance of strategic and tactical air power demonstrated the tremendous success capable when a blended approach is used--a balanced approach in preparation for war--in equipment, in strategy, in planning and execution.

Air Force doctrine, over the entire history of the Air Force prior to Desert Storm, ran along either one extreme or the other of the tactical versus strategic spectrum. But for the first time in air power history, the Gulf War air power effort represented a synthesis between these two doctrinal air power opposites. This synergistic effect, this flexible approach, this

evolutionary union, represents the greatest and most beneficial result of the Gulf War, and a tremendous lesson learned that must never be forgotten.

Air Force Changes Based on Success in the Gulf War

A massive Air Force reorganization followed the Gulf War. In the greatest move to demonstrate the new synthesis of the Air Force, Strategic and Tactical Air Commands were dissolved and melded together to form Air Combat Command--a command designed to employ warfighting aircraft based on need of the theater across the entire spectrum of air warfare. Air Force units began to reorganize around a "composite wing" approach, which centered around having a host of multi-role aircraft at each location; deployable as a unit to be able to go anywhere in the world and fight across strategic and tactical air power lines. Truly, all of the moves demonstrated with action that air power doctrine was coming of age.

The success of the new evolutionary approach combining tactical and strategic air power used in Desert Storm was the central theme of the new Air Force doctrine manual developed shortly after the Gulf War. The manual was designed to appeal not just to airmen, but to all services as well. Lieutenant Colonel Price Bingham, one author and key contributor relates:

"A number of these objectives should be of particular interest to the Army. One of these was producing a fully "documented" doctrine built on research. Another was increasing the doctrine's emphasis on the human aspects of war. The writers also wanted the manual to better differentiate aerospace power from surface-bound power. A fourth objective was making the basic guidance for the employment of aerospace power more current and relevant."⁷⁶

The doctrinal changes made by the Air Force would affect the military as a whole, not just the individual service. The bottom line isn't how the Air Force will fight the next war, but how all

the services will work together--a flexible multi-service approach to use the right force to achieve victory.

Flexibility means having the ability to apply capability across a broad spectrum of options--to apply the right capability for any given situation. Tactical air power flexibility isn't just a matter of having the right doctrine. One key that often gets overlooked in the service's parochial battle of control is the fact that each of the worldwide CINCs will be determining how he wants air power to be used in his theater, in accordance with or regardless of doctrine.

The theater CINC's most important consideration is capability. The best systems and capabilities are those that are multi-dimensional, providing the theater CINC with the greatest utility. As Desert Storm so aptly points out, the key to the use of air power in that theater, and the critical enabler of the battlefield interdiction effort, was flexibility for the JFACC through the JFC to use and employ tactical air as he saw fit. This flexibility came about because of the command and control system used in Desert Storm.

Flexible Command and Control

The theater CINC's most important capability is that of command and control (C2). Providing the capability to interdict the battlefield is reliant on the capability to detect enemy maneuver units and pinpoint their location. Getting real-time detection/acquisition, employment, then assessment is the ultimate goal of this system. Near as recent operations have gotten to achieving this goal, it is still a goal yet realized. There is no doubt that achieving this goal would increase the effect and accuracy of battlefield interdiction. As General Franks points out, it's a capability that is more often affected by human, rather than system problems:

“General Mike Loh over at Air Combat Command and I had this discussion...We have the targeting apparatus that is increasingly capable of detecting where the enemy is and moving that information around very, very rapidly. Why can't we, and shame on us if we allow procedures and lines on the map to stop us, conduct a campaign in near real time, that attacks the enemy simultaneously throughout the depth of the battlespace. We've got a lot of procedures that are getting in the way...now if this is Basrah, an F-15's flying around and an SA-2 site lights up. Now about 120 kilometers away there is an ATACMS capable MLRS battery...It took two hours to get that targeting data to that battery. Now it had to go to the ABCCC, back to Riyadh, who figured who's available to shoot it, to Third Army, to VIIth Corps...Now why in the hell was all of that necessary?”⁷⁷

The problem is there isn't a mechanism in place to allow quick engagement of a target that's been detected. Once iron's been put on the target, mission results then become the key--the ability to assess the status of those enemy forces after the interdiction missions have been flown. The objective of battlefield interdiction should be to tell corps and division commanders that the enemy before them is now at X% strength in as short of period as possible. The problem is not necessarily one of doctrinal missions, but more realistically, of command and control structure. There are plenty of systems out there, but the complexity of permission keeps the detection-employment-assessment loop from being real-time.

Command and Control Structure

The area of the command and control capability mentioned by General Franks that can enhance or paralyze operability is the structure--currently quantified as the Tactical Air Control System (TACS). The TACS structure is one that is directed by doctrine--but once again, as General Horner demonstrated, can be modified by the JFACC. In Desert Storm, General Horner modified the TACS structure as he saw fit to meet the needs of the theater--he flexibly modified the doctrinal setup.⁷⁸ The TACS structure is not a one-size fits all operation--even though some doctrinal interpreters would make it so. General Horner modified the TACS to

“strengthen and standardize our organizational alignment.”⁷⁹ Among the issues General Horner felt were most important in the initial setup of the theater, his first priority was to “adapt the Tactical Air Control System (TACS) to coalition warfare.”⁸⁰ The success achieved in the Gulf War was a direct result of making the TACS structure work for the theater CINC to provide the capability needed to defeat Iraq--especially its battlefield systems..

Command Relationships

Outside of the system and structure portions of command and control, command relationships, become the final, but most critical element. This was also demonstrated in the Gulf War. The trust of the Air Force developed by General Schwartzkopf through General Horner was a key to the success of air power. General Schwartzkopf vested his complete trust in providing his JFACC ultimate air power control authority. General Horner was careful to foster this trust as part of his own personal rules of engagement. As recorded in *The Gulf War*

Air Power Survey:

“General Horner believed that he had a very good professional relationship with General Schwartzkopf...Horner also made a strong effort to develop a close personal relationship with his commander...In Horner’s view, the benefit was that Schwartzkopf became “very trusting with the Air Force.”⁸¹

General Horner also earned the trust and confidence of his ground component counter-part, General Yeosock. As Dr. Richard Swain, Third Army historian points out: “He (General Yeosock) maintained a broader interservice perspective that recognized tradeoffs...no doubt this viewpoint came from his close personal association and confidence in General Horner (a relationship not shared by his subordinates).”⁸²

This thoroughly underscores the importance of cooperation among the leaders in theater and the affect they will have on capability and performance. Air power’s key capability is

operational shock across the operational depth and breadth of the battlefield. The willingness of the JFC to trust the JFACC and let him employ air assets in the most effective means possible was the key to producing the operational shock in Desert Storm. This trust between the JFC and his JFACC, and also between the JFACC and the JFLCC, enabled the flexible use and employment of air power to achieve victory.

Asymmetric Force Strategy

Putting it all together, the combination of Air Force doctrinal changes, joint operations and joint doctrine, and flexible command and control capabilities allow theater CINCs to apply a whole new approach to waging war. As a former theater CINC, and now the Air Force Chief of staff, General Ronald Fogleman believes these combinations enable a transition away from the old annihilation and attrition concepts of warfare, to a new way of war--which he calls "asymmetric force strategy."⁸³ This concept utilizes America's sophisticated military capabilities to achieve U.S. objectives by attacking enemy strategic and tactical centers of gravity. As General Fogleman explains:

"While they may vary as a function of the enemy, these centers generally include the leadership elite; command and control; internal security mechanisms; war production capability; and one, some or all branches of its armed forces--in short, an enemy's ability to effectively wage war. This kind of asymmetric force strategy aims to compel or coerce an adversary to do our will through careful planning and deliberate employment of force to achieve shock and surprise--the shock and surprise that results from confronting a state with the imminent destruction of its foundations of power by warfighting capabilities that clearly indicate the costs of continuing a conflict will outweigh any conceivable gains. In the end, asymmetric force seeks to compel an adversary to do our will at least cost to the United States in lives and resources."⁸⁴

The lessons learned from the Gulf War demonstrate the necessity of this type of strategy. The defeat of Iraq came not from just conquering its forces on the battlefield,

but by overwhelming the entire operational spectrum--both strategic and tactical centers of gravity. Future conflicts will require this same approach. Because of the success in the Gulf, this strategy has become the cornerstone of Air Force doctrinal development and it, more than anything else, may help to explain what happened to BAI.

As a result of adopting this strategy, the Air Force evolved doctrinally from focusing on just the strategic level, or just the tactical level, to operating across the entire spectrum from tactical to strategic--depending on the requirements of the situation. In the era of reduction, an across-the-spectrum capability means that systems and mission must be multi-functional. BAI was not multi-functional. It was just too specific, too limiting as a mission. Therefore, it either had to be deleted, or evolve into something bigger--which it did as demonstrated in Desert Storm.

CHAPTER 7: CONCLUSION

The objective of this paper was to answer the question “what happened to BAI?” The answer is, BAI hasn’t gone away...it’s been expanded. The evolution of the BAI concept represents a significant transition of doctrine for the Air Force. As a result of the synthesis of Air Force doctrine employed in the Gulf War, BAI became a multitude of other flexibly employed concepts--Killer Scouts, Tank Plinking, Kill Boxes, Strip Alert, etc. Today, it is reflected in X-INT in Korea, and other concepts in warfighting commands around the world. Battlefield interdiction is continuing to evolve as a concept and Air Force and joint doctrine must make that continued evolution possible.

Joint doctrinal definition can and will be difficult, as described, because of the complexity of joint and combined warfare. That doesn’t mean doctrine should be left undefined. But the bottom line is ensuring the theater CINC has all the capability and flexibility he needs to achieve victory. Stiffly enforced doctrinal regulations, command and control structure, fire support coordination measures, and other over-specific guidance all inhibit the flexibility of the JFC, JFLCC, and JFACC. When that flexibility is taken away, the battlefield is made linear, putting these commanders all in a box--limiting their ability to employ their forces in the most efficient and synergistic means possible to enhance their campaign plan.

Historically, battlefield interdiction has evolved from propeller bi-planes strafing trenches; blitzkrieg tactics which combined it with maneuver forces to become blitzkrieg; to makeshift old aircraft to flying creatively planned missions across a highly air-defended battlefield; to using precision aircraft systems and munitions striking heavy armor vehicles with deadly

accuracy. From World War I, to the present day Bosnian situation, the key to the use of air power is flexibility--for the commanders in theater to determine the best and most appropriate uses. Employment flexibility and non-limiting options allow the theater commander to analyze the situation and use air power to defeat the enemy across the operational spectrum and achieve mission objectives.

Throughout the twentieth century, from air power's very inception through today, air power usage has continually evolved--it is still evolving. There are those who think it has evolved enough and wish to direct the ways and means of employment for more limited objectives. However, as proven in Desert Storm, there are more vast and varied options to using air power that have yet to be discovered. For air power, specific doctrine can become a very limiting factor, boiling down its use to a set of absolutes. Continuing to use air power flexibly will ensure the evolution of air power doctrine beyond its present limits today.

Battlefield air interdiction was once thought to be the answer. That was the agreed upon solution between the Army and the Air Force for most of the 1980's. The desire to keep the term BAI and its mission according to the 31 Initiatives was really a semantics battle. The concept of battlefield interdiction, while the mission term was dropped, was performed under the guise of air interdiction in the Gulf War--even if it not to the satisfaction of the corps and division commanders. It is still being done in the Balkans and in Korea, but it's not called BAI. No matter, the important point is that air power is being used effectively to get results that lead to mission success. The problem is not that BAI doesn't exist anymore. It does exist within interdiction and there are many creative ways making the concept of BAI happen without having to call it BAI.

ENDNOTES

¹ General Merrill A. McPeak, "The Roles and Missions Opportunity," Armed Forces Journal International, March 1995, p. 32.

² While many in the military establishment believe that joint doctrine is the fix to the service doctrine interoperability problem, there is much evidence to the contrary. In a study commissioned by the U.S. Army War College, authors Douglas C. Lovelace, Jr. and Thomas-Durell Young write: once J-7 "decides on behalf of the CJCS that a new piece of doctrine (Project Proposal) is required, he publishes a Program Directive assigning a Lead Agent to direct the development effort. The Lead Agent, a service in most instances, writes or directs the writing of the drafts of the new publication and is, therefore, able to inject its doctrinal view of the subject area during the early stages of development. The result is that draft joint doctrine may emphasize, early on, what the Lead Agent considers to be its service's unique contributions to the doctrinal issue under consideration. While these parochial views may or may not survive the iterative coordination process unaltered, they establish adversarial relationships among the services. And, the reluctance to raise contentious issues for the Chairman's adjudication may result in doctrine that is not only watered down but also retains a certain amount of bias toward the Lead Agent's service." Strategic Plans, Joint Doctrine and Antipodean Insights, (Carlisle Barracks, PA: U.S. Army War College, 1995) p. 11.

Also, Colonel Dennis M. Drew remarks: "The most recent wrinkle is the drive to produce joint doctrine, a movement that is long overdue and at the same time sadly premature...It is premature because there is little evidence that even those on joint staffs fully understand and appreciate the different worldviews held by the various services, much less their consequences." "Joint Operations: The World Looks Different From 10,000 Feet," Airpower Journal, Fall 1988, p. 14.

³ U.S. Department of Defense, Joint Pub 1-02, DOD Dictionary of Military and Associated Terms, March 23, 1994, p. 17 and p. 74.

⁴ Headquarters, Department of the Army, FM 100-5, Operations, May 1986, p. 49. BAI definition is also listed in the 1985 version of FM 101-5-1, the Army's Operational Terms and Symbols manual, which is currently under revision.

⁵ Robert Frank Futrell, Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force, vol II (Maxwell AFB, AL, Air University Press, 1989) pp. 551, 552.

⁶ Terms taken from, Eduard Mark, Aerial Interdiction: Air Power and the Land Battle in Three American Wars, (Washington D.C., Center for Air Force History, 1994) p. 3.

⁷ Futrell, vol II, p.552.

⁸ Major C. William Robinson, AirLand Battle Tactics: An Analysis of Doctrine and Experience, (Ft. Leavenworth, KS, USCGSC, 1993) p. 17.

⁹ "Through interdiction operations, a JFC can exploit airpower's ability to concentrate firepower quickly at any point throughout the theater to affect enemy command and control systems, personnel, and material. Depending on the JFC's overall campaign plan, air interdiction can have a variety of focuses, such as command and control systems, logistics, movement networks, or follow-on forces. It can also produce a variety of effects, such as destruction, blockage, channelization, or systemic inefficiencies. Surface operations can support interdiction operations by forcing the enemy to consume supplies at an accelerated rate and to move forces to meet emerging threats. These movements and supply efforts then become targets for air attacks. Interdiction can also support surface operations. For example, attacks on enemy C2 systems contribute to operations that interfere with an adversary's ability to mass, maneuver, withdraw, supply, and reinforce surface forces. Headquarters, U.S. Air Force, AFDD 1, Air Force Basic Doctrine, Second Draft, (Washington D.C., May 21, 1996) p. 18.

¹⁰ Brig. General Robert H. Scales, Jr., Certain Victory, (Washington D.C., Brassey's Inc., 1993) pp. 174, 175.

¹¹ Futrell, vol I, p. 18.

¹² Richard P. Hallion, Storm Over Iraq: Air Power and the Gulf War, (Washington D.C., Smithsonian Institution Press, 1992) p. 6.

¹³ For a greater explanation of the development of blitzkrieg tactics, weapons, and methods, see Len Deighton, Blitzkrieg, (New York, Ballantine Books, 1979), part 3, "Weapons and Methods."

¹⁴ David MacIsaac, "Voices from the Central Blue: The Air Power Theorists," in Peter Paret, ed., Makers of Modern Strategy, (Princeton, Princeton University Press, 1986) p. 632.

¹⁵ Mark, p. 211.

¹⁶ War Department, FM 100-20, Command and Employment of Air Power, (Washington D.C., Government Printing Office, July 21, 1943) p. 6.

¹⁷ M.J. Armitage and R.A. Mason, Airpower in the Nuclear Age, (Champaign IL, University of Illinois Press, 1983) p. 165.

¹⁸ Futrell, vol I, p. 346.

¹⁹ Mark Clodfelter, The Limits of Air Power, (New York, the Free Press, 1989) p. 21.

²⁰ Dr. Williamson Murray, "Air Power since World War II: Consistent with Doctrine?" in Richard H. Schultz, Jr., and Robert L. Pfaltzgraff, Jr. eds, The Future of Air Power in the Aftermath of the Gulf War, (Maxwell AFB, AL, AU Press, 1992) p. 95.

²¹ Futrell, vol I, p. 377.

²² Murray, p. 104.

²³ Dr. Earl H. Tilford Jr., Setup: What the Air Force Did in Vietnam and Why?" (Maxwell AFB, AL, AU Press, 1991) p. 31.

²⁴ Mark, p. 326.

²⁵ General William W. Momyer, Air Power in Three Wars, (Washington D.C., Office of Air Force History, 1985) pp. 79, 90, 108.

²⁶ from an unnamed soldier in Hallion, p. 22.

²⁷ For a look at the thinking behind the development of AirLand Battle doctrine, see General Donn A. Starry, "Extending the Battlefield," Military Review, 8 March 1981.

²⁸ Hallion, p.75.

²⁹ U.S. Readiness Command, U.S. Army Training and Doctrine Command, and U.S.A.F. Tactical Air Command, USREDCOM Pam 525-8, TRADOC Pam 525-45, TACP 50-29, General Operating Procedures for Joint Attack of Second Echelon, (JSAK), (Ft. Monroe VA, ALFA, 1984), 4-1 - 4-6.

³⁰ Hallion, p. 79.

³¹ Ibid., p. 74.

³² Ibid.

³³ Richard G. Davis, The 31 Initiatives: A Study in Air Force - Army Cooperation, (Washington D.C., Office of Air Force History, 1987) p. 91.

³⁴ Ibid.

³⁵ Ibid., p. 3.

³⁶ Ibid., p. 92.

³⁷ Ibid., p. 112.

³⁸ FM 100-5, 1986, p. 48.

³⁹ Department of the Army, FM 100-15, Corp Operations, (Washington D.C., 1989), pp. 3-10, 3-11.

⁴⁰ Department of the Army, FM 71-100, Division Operations, (Washington D.C., 1990), pp. 4-20-4-21.

⁴¹ General Ronald R. Fogleman, "Aerospace Doctrine: More than Just a Theory," Airpower Journal, Summer 1996, p. 41.

⁴² Murray, p. 98.

⁴³ Futrell, vol I, p.3.

⁴⁴ Ibid.

⁴⁵ Futrell, vol II, p. 172.

⁴⁶ Colonel Dennis M. Drew, "Two Decades in the Air Power Wilderness: Do We Know Where We Are?" Air University Review, September-October, 1986, p. 11.

⁴⁷ Ibid., p. 12.

⁴⁸ Ibid., p 13.

⁴⁹ General Robert D. Russ, "The Air Force, The Army, and the Battlefield of the 1990's," Defense '88, July/August 1988, p. 13.

⁵⁰ Murray, p. 109.

⁵¹ John A. Warden III, The Air Campaign: Planning for Combat, (Washington D.C., NDU Press, 1988) p. 6.

⁵² Ibid., p. 5.

⁵³ Colonel Edward C. Mann III, Thunder and Lightning: Desert Storm and the Airpower Debates, (Maxwell AFB, AL, AU Press, 1995) p. 1.

⁵⁴ Warden, p. 39.

⁵⁵ Ibid.

⁵⁶ Colonel Richard T. Reynolds, Heart of the Storm: The Genesis of the Air Campaign Against Iraq, (Maxwell AFB, AL, AU Press, 1995) p. 30.

⁵⁷ Ibid., p 24.

⁵⁸ Ibid., p. 25.

⁵⁹ Mann, p. 19.

⁶⁰ Ibid.

⁶¹ Ibid., p. 2.

⁶² Reynolds, pp. 124-128.

⁶³ Michael R. Gordon, and General Bernard E. Trainor, The General's War, (New York, Little, Brown and Co., 1995) p.96.

⁶⁴ Michael A. Palmer, "The Storm in the Air: One Plan, Two Air Wars?" Air Power History, Winter 1992, p. 27.

⁶⁵ F-16 aircraft used as forward air controllers (FAC)s to increase speed of response and range. Concept was left over from the Vietnam War which General Horner participated in. FAST-FAC concept is described in relationship to the Vietnam War in Momyer.

⁶⁶ F-16 aircraft with a combination of ordinance used as a "pointer aircraft" for targets in kill boxes. These aircraft would direct F-15E, F-111, and A-6 aircraft to strike "hot" targets in kill boxes. see Elliot Cohen, director, Gulf War Air Power Survey, vols I, II, and summary, (Washington D.C., Government Printing Office, 1993), further known as GWAPS, vol II Operations, p 277.

⁶⁷ Kill Boxes were 30 nautical mile X 30 nautical boxes of enemy territory, divided into four quadrants and used to target and bomb Iraqi ground weapon systems without conflict of friendly force entry. Described in detail in GWAPS, vol II, Operations, p. 266.

⁶⁸ Using F-15E, F-111F, and A-6 infra-red and lazer designating ability to find "hot" metal vehicles and artillery in kill boxes, and strike them with precision-guided munitions. see GWAPS, vol II, Operations, pp. 271, 277-283.

⁶⁹ Another demonstration of General Horner's flexible use of capability. More and more as the war went on, ABCCC's role began to change to the role of airborne controllers. See GWAPS, vol I, Command and Control, pp. 317-323.

⁷⁰ See GWAPS, vol II, Operations, pp. 255, 260-270. A-10's were used against Republican Guard armored forces during most of the air war.

⁷¹ Rick Atkinson, Crusade, (Boston, Houghton Mifflin Co., 1993) p. 219.

⁷² Colonel Richard B.H. Lewis, "JFACC: Problems Associated with Battlefield Preparation in Desert Storm," Airpower Journal, Spring 1994, p. 19.

⁷³ Ibid.

⁷⁴ GWAPS, vol I, Planning, p. 59.

⁷⁵ Ibid., p. 60.

⁷⁶ Lieutenant Colonel Price T. Bingham, "The Air Force's New Doctrine," Military Review, November 1992, p. 13.

⁷⁷ Robinson, p. 47.

⁷⁸ GWAPS, vol I, pp. 65-75.

⁷⁹ Ibid., p. 60.

⁸⁰ Ibid., p. 43.

⁸¹ Ibid., p. 61.

⁸² Richard M. Swain, "Lucky War: Third Army in Desert Storm, (Ft. Leavenworth KS, USCGSC Press, 1994) pp. 189, 190.

⁸³ General Ronald R. Fogleman, "Advantage USA: Air Power and Asymmetric Force Strategy," Air Power History, Summer 1996, p. 7.

⁸⁴ Ibid.

BIBLIOGRAPHY

BOOKS

- Armitage, M.J. and Mason, R.A. Airpower in the Nuclear Age. Champaign, IL: University of Illinois Press, 1983
- Atkinson, Rick. Crusade: The Untold Story of the Persian Gulf War. Boston: Houghton Mifflin Company, 1993.
- Bowie, Christopher, et al. The New Calculus: Analyzing Airpower's Changing Role in Joint Theater Campaigns. Santa Monica, CA: the Rand Corp., 1993.
- Cardwell, Thomas A. Airland Combat: An Organization for Joint Warfare. Maxwell AFB, AL: AU Press, 1992.
- Clodfelter, Mark. The Limits of Air Power. New York: The Free Press, 1989.
- Cohen, Eliot A. Gulf War Air Power Survey, vol I, Planning/ Command and Control. Washington D.C.: U.S. Government Printing Office, 1993.
- _____. Gulf War Air Power Survey, vol II, Operations/ Effects and Effectiveness. Washington D.C.: U.S. Government Printing Office, 1993.
- Conduct of the Persian Gulf War: The Final Report to Congress. Washington D.C.: U.S. Government Printing Office, 1992.
- Davis, Richard G. The 31 Initiatives: A Study in Air Force - Army Cooperation. Washington D.C.: Office of Air Force History, 1987.
- Deighton, Len. Blitzkrieg. New York: Ballantine Books, 1979.
- Drew, Dennis M. Airpower in the New World Order. Carlisle Barracks, PA: Army War College, 1993.
- Futrell, Robert Frank. Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force, vol I and vol II. Maxwell AFB, AL: AU Press, 1971.
- Gordon, Michael R. and Trainor, General Bernard E. The Generals' War. Boston, MA: Little, Brown and Company, 1995.
- Hallion, Richard P. Storm Over Iraq. Washington: Smithsonian Institution Press, 1992.
- Kearney, Thomas A. and Cohen, Eliot A. Gulf War Air Power Survey Summary Report. Washington, DC: US government Printing Office, 1993.

- MacIsaac, David. "Voices from the Central Blue: The Air Power Theorists." in Paret, Peter. ed. Makers of Modern Strategy. Princeton: Princeton University Press, 1986.
- Mann, Col Edward C. III. Thunder and Lightning. Maxwell AFB, AL: AU Press, 1995.
- Mark, Eduard M. Aerial Interdiction in Three Wars. Washington D.C.: Center for Air Force History, 1994.
- Momyer, William W. Airpower in Three Wars. Washington D.C.: Office of Air Force History, 1978.
- Murray, Dr. Williamson. "Air Power since World War II: Consistent with Doctrine?" in Schultz, Richard H. Jr., and Pfaltzgraff, Robert L. Jr. eds. The Future of Air Power in the Aftermath of the Gulf War. Maxwell AFB, AL: AU Press, 1992.
- _____. Strategy for Defeat: The Luftwaffe 1933-45. Maxwell AFB, AL: AU Press, 1983.
- Reynolds, Col Richard T. Heart of the Storm. Maxwell AFB, AL: AU Press, 1995.
- Scales, Col Robert H. Certain Victory. Ft Leavenworth, KS: U.S. Army Command and General Staff College Press, 1994.
- Schultz, Richard H., Jr. and Pfaltzgraff, Robert L., Jr. editors. The Future of Air Power in the Aftermath of the Gulf War. Maxwell AFB, AL: Air University Press, 1992.
- Schwarzkopf, H. Norman. It Doesn't Take a Hero. New York: Bantam Books, 1992
- Swain, Richard M. Lucky War. Ft Leavenworth, KS: U.S. Army Command and General Staff College Press, 1994.
- Tilford, Dr. Earl H. Jr. Setup: What the Air Force Did in Vietnam and Why? Maxwell AFB, AL: AU Press, 1991.
- US News and World Report. Triumph Without Victory: The Unreported History of the Persian Gulf War. New York: Times Books, 1992.
- Warden, John A. III. The Air Campaign: Planning for Combat. Washington D.C.: National Defense University Press, 1988.
- Watts, Barry D. The Foundations of U.S. Air Doctrine: The Problem of Friction in War. Maxwell AFB, AL: AU Press, 1984.

ARTICLES

Bingham, LTC Price T. "Air Power in Desert Storm and the Need for Doctrinal Change." Airpower Journal, (Winter 1991): p. 33-46.

_____. "The Air Force's New Doctrine." Military Review, (November 1992): p. 13-19.

Boyd, Gen Charles G., and Westenhoff, LTC Charles M. "Air Power Thinking: Request Unrestricted Climb." Airpower Journal, (Fall 1991): p. 4-15.

Cohen, Eliot A. "The Mystique of Air Power." Foreign Affairs, (Jan-Feb 1994): p. 109-124.

Drew, Col. Dennis M. "Joint Operations: The World Looks Different From 10,000 Feet." Airpower Journal, (Fall 1988): p. 6-16.

_____. "Desert Storm as a Symbol." Airpower Journal, (Fall 1992): p. 4-13.

Fawcett, Major John M. Jr. "Which Way to the FEBA?" Airpower Journal, (Fall 1992): p. 15-24.

Fedorchak, Capt. Scott A. "Close Air Support: Repeating the Past Again?" Airpower Journal, (Spring 1994): p. 22-33.

Fogleman, General Ronald R. "Advantage USA: Air Power and Asymmetric Force Strategy." Air Power History, (Summer 1996): p. 4-13.

_____. "Aerospace Doctrine: More than Just a Theory," Airpower Journal, (Summer 1996): p. 40-47.

Foss, Gen John W. "Airland Battle--Future: Advent of the Nonlinear Battlefield." Army, (February 1991): p. 20-37.

Glossen, Gen Buster C. "Impact of Weapons on Air Combat Operations." Airpower Journal, (Summer 1993): p. 4-9.

Horner, Gen Charles A. "The Air Campaign." Military Review, (September 1991): p. 16-27.

Jones, LTC Brian W. "Close Air Support: A Doctrinal Disconnect." Airpower Journal, (Winter 1992): p. 60-71.

Lewis, Col Richard B. H. "JFACC: Problems Associated with Battlefield Preparation in Desert Storm." Airpower Journal, (Spring 1994): p. 6-21.

Mackenzie, Richard. "A Conversation with Chuck Horner." Air Force Magazine, (June 1991): p. 57-64.

McPeak, Gen, Ret Merrill A. "Roles and Missions Opportunity." Armed Forces Journal International, (March 1995): p 32-34.

_____. "TACAIR Missions and the Fire Support Coordination Line." Air University Review, (Summer 1986): p. 65-72.

Meilinger, Col Phillip S. "Towards a New Airpower Lexicon, or Interdiction: An Idea Whose Time has Finally Gone?" Airpower Journal, (Summer 1993): p. 39-47.

_____. "The Problem with Our Air Power Doctrine." Airpower Journal, (Spring 1992): p. 25-31

Palmer, Michael A. "The Storm in the Air: One Plan, Two Air Wars?" Air Power History, (Winter 1992): p. 24-31.

Russ, Gen (Ret) Robert D. "The Air Force, the Army, and the Battlefield of the 1990's." Defense '88, (July/August 1988): p 12-17.

Starry, Gen. Donn A. "Extending the Battlefield." Military Review, (8 March 1981): p. 67-72.

Watts, Barry D. "Friction in the Gulf War." Naval War College Review, (Summer 1995): p. 93-108.

Winnefeld, James A, and Johnson, Dana J. "Unity of Control: Joint Air Operations in the Gulf." Joint Forces Quarterly, (Summer 1993): p. 88-99.

Winton, Harold R. "Partnership and Tension: The Army and Air Force Between Vietnam and Desert Shield." Parameters, (Spring 1996): p 100-117.

_____. "Reflections on the Air Force's New Manual." Military Review, (November 1992): p. 20-31.

Yeosock, Gen John J. "Army Operations in the Gulf Theater." Military Review, (September 1991): p. 3-15.

_____. "H+100: An Army Comes of Age in the Persian Gulf." Army, (October 1991): p. 44-58.

GOVERNMENT PUBLICATIONS

Air Force Doctrine Document 1, vol I (2nd Draft) and vol II (4th Draft)

Air Force Manual 1-1, Vol I, and Vol II

Army FM 71-100, Division Operations, June 1990

Army FM 100-5, Operations, May 1986

Army FM 100-15, Corp Operations, September 1989

JFACC Primer, Second Edition, February 1994

Joint Pub 1

Joint Pub 1-02

Joint Pub 3-0

Joint Pub 3-03

Joint Pub 3-03.1

Joint Pub 3-09

Joint Pub 3-52

U.S. Readiness Command, U.S. Army Training and Doctrine Command, and U.S.A.F. Tactical Air Command, USREDCOM Pam 525-8, TRADOC Pam 525-45, TACP 50-29, General Operating Procedures for Joint Attack of Second Echelon, (JSAC), (Ft. Monroe VA, ALFA, 1984).

War Department, FM 100-20, Command and Employment of Air Power,

TRADOC PAM 525-5, 1 AUG 1991

TRADOC PAM 525-5, 1 AUG 1994

STUDIES

Joint Chiefs of Staff. Chairman of the Joint Chiefs of Staff Report on the Roles, Missions, and Functions of the Armed Forces of the United States, 1994.

Lovelace, Douglas C. Jr. and Young, Thomas-Durell. Strategic Plans, Joint Doctrine and Antipodean Insights. Carlisle Barracks, PA: U.S. Army War College, 1995.

Martin, Lt Col Jerome V. Victory From Above, , Maxwell AFB, LA: Air University, June 1994.

Robinson, Major William C. AirLand Battle Tactics: An Analysis of Doctrine and Experience. Ft. Leavenworth, KS: USCGSC, 1993.